



Additional `sample_ratio_idc` values for square samples (J0287)

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Goal

- Keep same implied spatial span in output for:

Two video sequences with:

Square samples,

Fixed picture rate

but different widths & heights

Issue

- `aspect_ratio_idc = 1`
 - square samples 1: 1
- Two consecutive sequences may have same picture rate, different resolution
 - but square samples
 - e.g., 1280x720 & 1920x1080
- Splicer Issue: carry both

Motivation

- Commercial insertion in broadcast applications, picture resolution changes → burden

Carry both versions because:

- The physical clock driving the output stage of a receiver must not change from one to the next coded video sequence

Proposal

Support for square samples with other scale factors

Option 1: New **aspect_ratio_idc** values

(1.5 : 1.5) (0.667 : 0.667) (2: 2)

Option 2: add **sample scale_factor_index**

specify “sample scale factor”

for any sample aspect ratio

Example

- Equal aspect ratio, output pictures remains constant (main/dominant resolution)

Dominant resolution	Sample aspect ratio	Resolution received	Proposed sample aspect ratio
1920x1080	1:1	1280x720	1.5:1.5
1280x720	1:1	1920x1080	0.6667:0.6667
1920x1080	1:1	960x540	2:2

Option 1

- Use **aspect_ratio_idc** 17, 18, and 19 (currently reserved)

aspect_ratio_idc	Interpretation of aspect_ratio_idc (Informative - Examples of Use)
17	1.5 : 1.5 sample aspect ratio; square sample with a scale factor equal to 3/2 (1280x720 16:9 frame output as 1920x1080 without horizontal overscan)
18	0.667 : 0.667 sample aspect ratio; square sample with a scale factor equal to 2/3 (1920x1080 16:9 frame output as 1280x720 without horizontal overscan)
19	2:2 sample aspect ratio; square sample with a scale factor equal to 2 (960x540 16:9 frame output as 1920x1080 without horizontal overscan)

Option 2

	Descriptor
vui_parameters() {	
aspect_ratio_info_present_flag	u(1)
if(aspect_ratio_info_present_flag) {	
aspect_ratio_idc	u(8)
if(aspect_ratio_idc == Extended_SAR) {	
sar_width	u(16)
sar_height	u(16)
}	
sample_scale_factor_flag	
if(sample_scale_factor_flag)	
sample_scale_factor_index	u(3)
}	
}	

Option 2

sample_scale_factor_index	sample_scale_factor
0	1.0
1	1.5 (3/2)
2	0.667 (2/3)
3	2.0
4-7	Reserved

Option 2 - Semantics

- **sample_scale_factor_flag** equal to 1 specifies that `sample_scale_factor_index` is present. `sample_scale_factor_flag` equal to 0 specifies that `sample_scale_factor_index` is not present. When `sample_scale_factor_flag` is not present, its value is inferred to be equal to 0.
- **sample_scale_factor_index** specifies the sample scale factor in **Table E.X**. When `sample_scale_factor_index` is not present, its value is inferred to be equal to 0.